ShakeOnIt

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"The secret, in this sense the hiding of realities by negative or positive means, is one of man's greatest achievements."
Georg Simmel

ShakeOnIt uses a fundamental social ritual – the handshake – as an interface for a new form of interactive security device. The interface juxtaposes an open and public gesture with security and secrecy, bolstering the supposition that secrets are best hidden in plain view.

There are several types of interfaces that could illustrate the theme that codes can be embedded and activated digitally in quotidian objects, though the prototype we built focuses specifically on the handshake. Doorknobs, jewelry and physical keys were also explored.

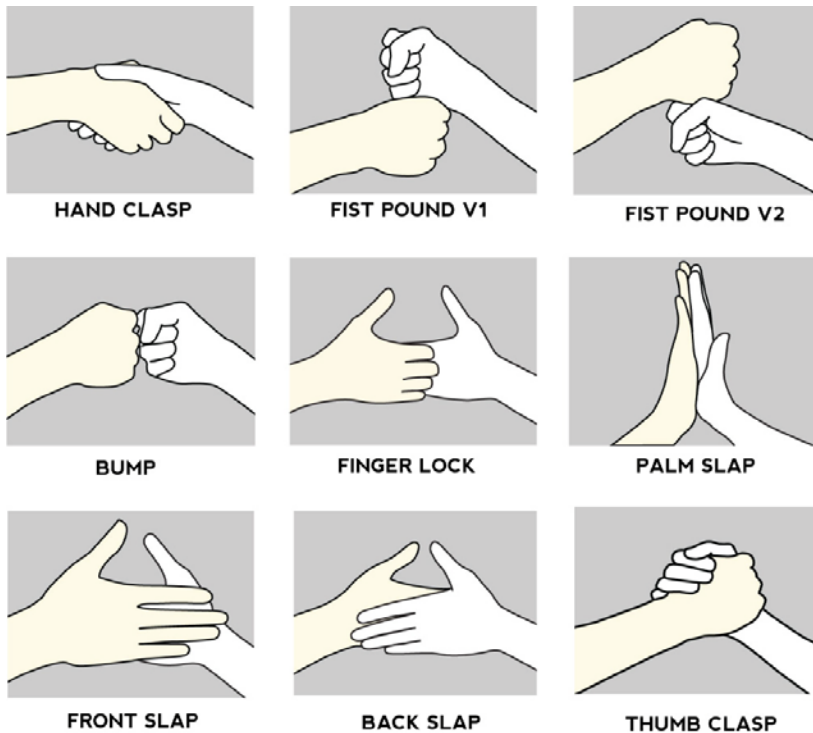Conceptually, the project has four separate themes:

1. Information Hidden In Plain Sight: Using familiar objects and gestures as mediums for the storage and transfer of sensitive information. Security companies grapple constantly with how to make information more "secure" – we posit that embedding this information in everyday gestures and objects and then using the objects themselves as the interface is compelling because it is extremely difficult to differentiate between the gesture itself and the actual transfer of hidden information.

2. Leveraging Social Codes and Norms for Security Purposes: An extension of the hidden in plain sight theme, we also explored the idea that socializing a code could actually serve to make it more secure by bringing others into the process. Especially when it's the secrets of a group – whether official or informal – having the security as socially constricted creates a way for people to check one another.

3. Interactive, Dynamic and Hypercustomized Security: This project also takes the idea of security, which normally exists in relatively static forms (home security systems, padlocks, etc.) and making the form factor itself interactive.

4. Gestural Security - Utilizing Physically Intuitive Gestures: With many types of security interfaces, you must learn how to physically interact with the device. This project explores interactions and gestures that are already

physically intuitive. We are presenting the idea that you can encode hidden information into everyday gestures and rituals – making them inseparable and therefore indistinguishable.

What We Built

As a way to explore physical manifestations of these four themes, we built a prototype for ShakeOnIt using Polartec Polyester gloves re-sewed with conductive fabric and a Lilypad Arduino. The gloves are sensitive to nine specific gestures that represent familiar handshake movements and a certain sequence of gestures will activate or "grant access" if performed by the two participants correctly.

The gestures are illustrated below:

HAND CLASP	FIST POUND V1	FIST POUND V2
BUMP	FINGER LOCK	PALM SLAP
FRONT SLAP	BACK SLAP	THUMB CLASP

Upon completion of a right combination of gestures, access is granted or denied.

Previous Work

We analyzed previous work from several genres: interface design, wearable computing, and critical theory.

Notable work:

1. SyncTap (http://www.sonycsl.co.jp/IL/projects/sync/) – Uses synchronous actions to create a nearly instantaneous network connection between devices

2. Graspables (http://labcast.media.mit.edu/?p=66) – Graspables is an MIT Media Lab project that uses the way people hold and manipulate objects as a user interface.

3. Wearables (http://www.media.mit.edu/wearables/) – The Wearables project explores wearable computing devices. In a sense, this project has many elements of wearable computing. One of the central themes of the project is that we are hoping to make intuitive everyday interactions more digital.

 4. Critical Theory – We examined several articles that explore the role of secrecy in society to get a better understanding for how socializing secrecy would affect both perceptions of relative versus actual security:

> a. Lowry, Ritchie P. "Toward a Sociology of Secrecy and Security Systems."
>
> b. Wexler, Mark N. "Conjectures on the Dynamics of Secrecy and the Secrets Business."
>
> c. Cohen, Abner. "The Politics of Ritual Secrecy."
>
> d. Ku, Agnes S. "Boundary Politics in the Public Sphere: Openness, Secrecy and Leak."

Concept Evolution

Although the prototype that we built revolved around a handshake and interactive interpersonal gestures, there are three other tangible manifestations that were discussed:

1. Decoder Ring - Building the code-breaking device into a ring equipped with an accelerometer allows the project to be built in a way that preserves

the individuality of security while still tackling the idea that security devices can be hidden in plain sight and incorporated into everyday objects.

ShakeOnIt
the secret handshake of the future

aircraft grade titanium metal
swarovski crystals

hidden transciever embedded bedhind stones. Different color crystals represent different signals or levels of 'clearance'

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2. Braille Doorknob – Hide messaging in Braille on the back of a doorknob that gives the user clues on how to open the door.

deCoder doorKnob
aircraft grade titanium metal
discrete braille buttons are placed on the back of the doorknob for a programmable, customized entry code.

ShakeOnIt
the secret handshake of the future

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3. Advanced Skeleton Key – A key hiding inside a key is another way to examine interactive security. The key has Braille dots (numbered 1-8) on a rotating circular handle that works somewhat like a combination lock and activates the key by pushing out different "teeth" combinations with different numbers. In this examine, the doorplate of the door tells the user how to use the key – making not only an interaction between the user and the key/door handle, but between the key and the door handle themselves.

ShakeOnIt
the secret handshake of the future

deCoder key

key with rotating ring. alignment of the right
code with the stem of the key activates the
key by releasing its teeth.